



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,831	03/15/2002	Khurram Muhammad	TI-32802	2635

7590 05/27/2004  
Ronald O. Neerings  
Texas Instruments Incorporated  
M/S 3999  
P.O. Box 655474  
Dallas, TX 75265

EXAMINER

DAVIS, TEMICA M

ART UNIT	PAPER NUMBER
----------	--------------

2681

11

DATE MAILED: 05/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

124

# Office Action Summary

Application No.

10/099,831

Applicant(s)

MUHAMMAD ET AL.

Examiner

Temica M. Davis

Art Unit

2681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-14 and 20-39 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 15-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1, 2, 16-19 and 35-39 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Champlin, U.S. Patent No 6,294,896 in view of Marzalek et al (Marzalek), U.S. Patent No. 5,162,723.

Regarding claims 1 and 19, Champlin discloses obtaining from a first voltage waveform a plurality of temporally distinct samples respectively indicative of areas under corresponding half-cycles of the first voltage waveform (col. 3, lines 25-45, col. 14, lines 8-25); combining the samples to produce the second voltage waveform (col. 3, lines 33-45).

Champlin, however, fails to disclose manipulating the samples to implement a filtering operation such that the second voltage waveform represents a downconverted, filtered version of the first voltage waveform.

Art Unit: 2681

In a similar field of endeavor, Marzalek discloses a sampling signal analyzer. Marzalek further discloses manipulating samples to implement a filtering operation such that a second voltage waveform represents a downconverted, filtered version of a first voltage waveform (col. 8, lines 20-32).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Champlin with the teachings of Marzalek for the purpose of producing a desired signal level (Marzalek, col. 8, lines 26-30).

Regarding claim 2, the combination of Champlin and Marzalek discloses the method of claim 1, wherein said obtaining step includes transforming the first voltage waveform into a corresponding current waveform, and integrating each half-cycle of the current waveform (Champlin, col. 14, lines 8-28).

Regarding claim 18, the combination of Champlin and Marzalek discloses the method of claim 1, wherein the first voltage waveform is an RF waveform as evidenced by the fact that any signal can be used (Marzalek, col. 7, lines 35-39).

Regarding claims 15-17, the combination of Champlin and Marzalek discloses the filtering operation/apparatus of claim 1 as described above. The combination, however, fails to disclose the filtering to include FIR, IIR, fractional coefficient filtering, differential coefficient filtering or triangular coefficient filtering.

The examiner contends, however, that these types of filtering are well known in the art, and the examiner takes official notice as such.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Paterson with these types of filters, since they are widely used in removing unwanted signals.

Art Unit: 2681

4. Claims 3-14 and 20-39 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter: Prior art fails to suggest or render obvious a method of downconverting a first periodic voltage waveform into a second periodic waveform as described in independent claims 3, 20 and 39.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gandhi et al, U.S. Patent No. 6,678,709, discloses a digital filter with efficient quantization circuitry.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temica M. Davis whose telephone number is (703) 306-5837. The examiner can normally be reached Monday-Friday (alternate Fridays) from 9:00am-3:00pm.

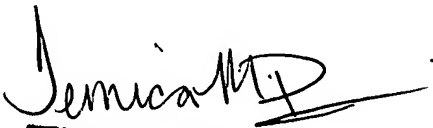
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Erika Gary can be reached on (703) 308-0123. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2681

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Temica M. Davis  
Examiner  
Art Unit 2681

May 24, 2004

  
**TEMICA M. DAVIS**  
**PATENT EXAMINER**